## CLAIMS

1. A method of making an oxidation-resistant alloy melt, wherein said alloy melt comprises magnesium as a primary alloying metal, and aluminum and strontium as secondary alloying metals, and wherein said method comprises: melting said alloying metals under an atmosphere of an inert gas selected from a mixture of carbon dioxide and sulfur fluoride gas, a mixture of nitrogen and sulfur dioxide gas, and combinations thereof.

2. The method of claim 1, wherein said alloy melt comprises, in weight percent, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys.

3. A method of making a magnesium-based alloy casting from an oxidation-resistant alloy melt, wherein said alloy comprises, in weight percent of alloying metals, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys, and wherein said method comprises: melting said alloying metals under an atmosphere of an inert gas selected from a mixture of carbon dioxide and sulfur fluoride gas, a mixture of nitrogen and sulfur dioxide gas, and combinations thereof.

4. The method of claim 3, wherein said alloy has a structure including a matrix of grains of magnesium having a mean particle size of from about 10 to about 200 micrometers reinforced by intermetallic compounds having a mean particle size of from about 2 to about 100 micrometers.

5. An oxidation-resistant alloy melt, wherein said alloy melt comprises magnesium as a primary alloying metal and aluminum and strontium as secondary alloying metals, and wherein said alloy melt is prepared by a method comprising: melting said alloying metals under an atmosphere of an inert gas selected from a mixture of carbon dioxide and sulfur fluoride gas, a mixture of nitrogen and sulfur dioxide gas, and combinations thereof.

6. The oxidation-resistant alloy melt of claim 5, wherein said alloy melt comprises, in weight percent, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys.

7. The oxidation-resistant alloy melt of claim 6, wherein said alloy melt consists essentially of, in weight percent, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys.

8. The oxidation-resistant alloy melt of claim 7, wherein said alloy melt consists of, in weight percent, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys.

9. A magnesium-based alloy casting prepared from an oxidation-resistant alloy melt, wherein said alloy comprises, in weight percent of alloying metals, 2 to 9 % aluminum, 0.5 to 7 % strontium, 0 to 0.60 % manganese, and 0 to 0.35 % zinc, with the balance being magnesium except for impurities commonly found in magnesium alloys, and wherein said alloy melt is prepared by a method comprising: melting said alloying metals under an atmosphere of an inert gas selected from a mixture of carbon dioxide and sulfur fluoride gas, a mixture of nitrogen and sulfur dioxide gas, and combinations thereof.

10. The magnesium-based alloy casting of claim 9, wherein said alloy has a structure including a matrix of grains of magnesium having a mean particle size of from about 10 to about 200 micrometers reinforced by intermetallic compounds having a mean particle size of from about 2 to about 100 micrometers.